

Rocks and Minerals

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Edited and Published by
PETER ZODAC

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Contents for December, 1940

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ROCKS and MINERALS

PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Chips From The Quarry

A MINERALOGICAL CHRISTMAS

In the early days of this magazine it was the custom of many of its readers to make Christmas a mineralogical Christmas. Many choice specimens of minerals, crystals, gems, as well as mineralogical books and other material dear to the hearts of collectors—even subscriptions to *Rocks and Minerals*—were given away as presents to friends and relatives in general and young people in particular. It was through this means that many individuals wholly unfamiliar with minerals became ardent collectors.

During the past few years this very laudable practice has almost disappeared or at least it is not so prevalent. We still have happy recollections of receiving many five and even ten Christmas gift subscriptions from an individual subscriber, now if the total gift subscriptions reach fifteen it is a large number.

The Christmas season is still the best period of the year for many dealers but the large number of substantial orders sent in appear to be for specimens which are solely for the collectors ordering them. More subscriptions and renewals are received by *Rocks and Minerals* during this period than during any other of the year. Nevertheless if mineralogy is to grow and prosper we must increase the number of those participating. A



very simple, easy and commendable method is to make Christmas a mineralogical one. It will not be very difficult either because so many of us give away gifts. You can get some excellent hints on mineralogical gifts from the advertising pages of this issue and we are quite certain our advertisers would not only be glad to cooperate with you but would feel a real interest in doing so.

This year let our gifts be mineralogical ones.

Peter Zodac



*Merry Christmas
and a Happy New Year*



The Editor of *ROCKS AND MINERALS* desires to wish for all the readers and advertisers a very merry Christmas and a happy New Year.

May 1941 bring to each and every one of you Happiness, Prosperity, Contentment and a renewed interest in the wonderful beauty, charm and diversity of the mineral kingdom in which we are all so interested.

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Vol. 15, No. 12



The Official Journal
of the
ROCKS and MINERALS
ASSOCIATION



Whole No. 113

MICRO MINERAL MOUNTS Their Illumination and Visualization

By JAY T. FOX
Fox Museum of Natural History
Seaford, L. I., N. Y.

The Microscope was invented about two hundred and forty (240) years ago, and it is surprising to note that today, the greater majority of educated persons have never experienced the thrill of looking into one. Mineralogists are scientifically inclined, yet among the enormous number of mineral collectors, it hardly seems possible that so few have chosen the fascinating study of Micro Mineralogy.

Perhaps this lack of interest is due to the expense involved in the purchase of a good Microscope, but the initial expense for equipment is more than offset, by the lack of cash outlay, after the original investment.

Most collectors purchase, periodically, cabinet size mineral specimens at great cost. They require a large space for display, not to forget the expense of cabinets, lighting arrangements, etc., for proper exhibition. Whereas, in Micro Mineralogy, all specimens are mounted permanently on corks and placed in small 1" x 1" cardboard boxes. The price is negligible. One cabinet size mineral specimen, after being broken up, will quite often give you a dozen or more good Micro specimens. After selecting the best ones for your own collection, the balance of the mounts may then be traded with other Micro Mineralogists, for those which you do not have. Needless to say, the finest crystals, in form, structure and cleanliness, are the microscopic ones which are exposed for the first time in a newly opened cavity.

Many fine articles on Micro Mineral-

ogy have appeared in this magazine from time to time. All of them seem to cater to the actual preparation and mounting of the various minerals. Little has been said about the apparatus used for illuminating and viewing the specimens after being mounted.

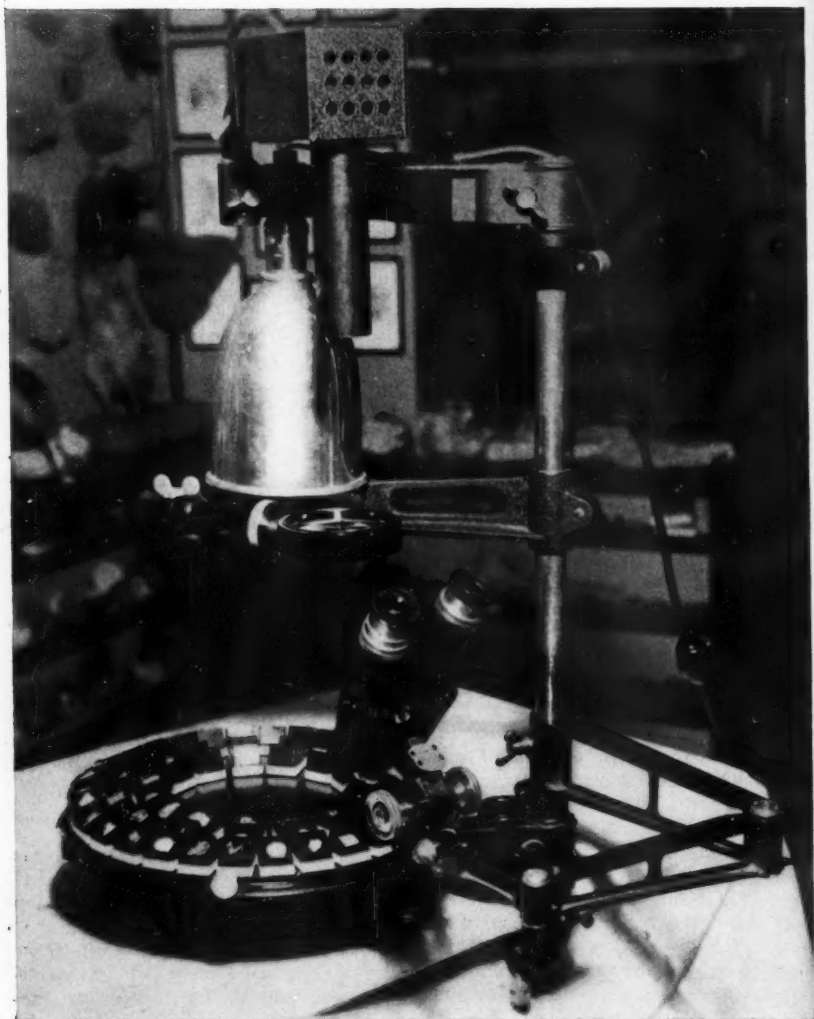
Dr. L. C. Wills of Philadelphia is to be highly complimented on the wonderful contribution he made to this science, in the complete thesis he wrote. It appeared in the December issue of this magazine in the year 1931.

For years I have been very much interested in the microscopical aspect of minerals and their crystal formations. Due to the lack of equipment, I was handicapped to properly illuminate and visualize these minute beauties; so at the beginning of this year, I set about to assemble a suitable unit, just for this purpose. (See Photograph "A")

MICROSCOPE

The first piece of equipment I required, was a good Binocular Microscope, this to replace the Monocular type I had been using. After looking them over, I finally decided upon a low power one of Leitz manufacture. It was outlitted with one pair of fixed objectives, and three (3) pairs of oculars, which gave me a range of 10x-20x-30x.

The Binocular Microscope offers a great advantage over the Monocular type in many ways. Principally less fatigue for the observer and minimum eye strain. It also gives stereoscopic vision, which reveals much more detail as to the struc-



Photograph A
Complete unit showing
12" turn table.

ture of the minerals and crystals. They stand out in striking plastic relief. With Monocular vision, stereoscopy is impossible. In addition to this, an extremely wide field (8mm to 16mm) and a long working distance, (79mm) allows ample room for manipulating large specimens.

Another point worth mentioning; when one looks through a Binocular Microscope, the mineral specimen is seen in its true position, not inverted nor reversed.

The Binocular body is equipped with a dove-tail slide fitting, for ready interchange with a rack and pinion fitting. This is also fitted with another dove-tail slide. The reason for the slide fittings is, it makes the Binocular body with it's optical components readily transferable to the various stands and arms which make up the unit.

MICROSCOPE STAND

The Microscope stand I found most suitable consisted of a table clamp, in which slides a vertical pillar, adjustable in height. The pillar can be arranged to any desired height, and rigidly locked in place by means of a screw at the table clamp. A horizontal arm is provided with two (2) inclination joints, permitting the Binocular body to be oriented in its horizontal plane. An additional joint is located at the extreme end of this arm, by means of which the Binocular body is tilted in it's vertical axis. This joint is fitted with a dove-tail groove that accomodates the rack and pinion mechanism and Binocular body. Fully extended, the arm is 62cm. from the center of the pillar to the object under observation, allowing very large specimens to be viewed. The arm glides upon the vertical pillar, and through the clamping screw it can be set at any desired height. An extra clamping socket permits this arm to rest thereon, and affords it a swinging motion, respective to the vertical pillar.

ILLUMINATING UNIT

To properly illuminate the specimens was my next problem. Practically all of

the lighting units on the market to-day, project the ray of light from the side, or in other words, at an angle. As to be expected, shadows are invariably cast. What I wanted was a *vertical* beam of light, of intense brilliancy, that could be adjusted through a condensing lens to a pin point, if necessary: a regulated path of light directed downward upon the surface of the specimen being viewed.

Unable to obtain a lamp of these requirements, I was forced to have one constructed to my own specifications. I had a special transformer wound with a primary voltage of 110, and a secondary voltage of 10. The capacity was 10 amperes. This transformer, connected to a bayonet type lamp socket, accomodated a 50 cp No. 1183 automobile head light bulb. It was mounted in a metal container, properly ventilated. The light beam was projected through a 6" long metal tube, which had inserted in it's furthest end a Biconvex Aspheric lens, giving a 1-1/2" parallel ray of pure white light.

As this automobile headlight bulb is designed for operating on 6 to 8 volts, you can see, that by impressing 10 volts on the filament from the special transformer, I was able to get a far more brilliant light. (This means shorter life for the bulb). However, at the cost of forty cents each, it is really a small expense compared with the results obtained. I found the average life of a bulb burning under this increased voltage approximated one hundred (100) hours.

The illuminating unit was equipped with a dove-tail slide fitting and mounted on a special inclinable joint, which, not only allowed the lamp to be rotated, but also let it be inclined and locked at any angle, from a horizontal to a vertical position. This inclinable joint is placed on the end of a 10" arm, the opposite end of which, slides on the vertical pillar. It can be locked by means of a clamp in any position on the pillar, permitting the arm to be either rotated in a horizontal plane or shifted up or down on the vertical pillar.



CONDENSING UNIT

A suitable three (3") inch condensing lens was mounted in a metal ring. Equipped with an universal joint, it can be rotated horizontally or at any angle. I had a threaded stem and large knurled nut attached to the metal ring to allow fine adjustment of the beam of light in any position. The condensing unit is placed in the end of a twelve (12") inch arm, the opposite end of which slides on the vertical pillar and can be locked by means of a clamp, in any position on this pillar, allowing the condenser to be either rotated in a horizontal plane or shifted up or down on the vertical pillar. With the condensing lens centered in the parallel beam of light coming from the lamp unit above it, any degree

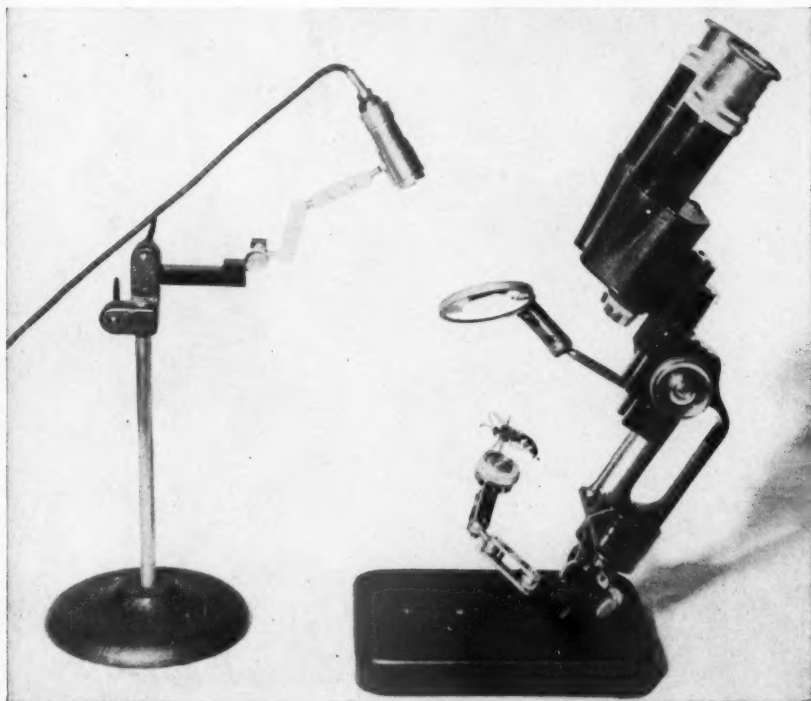
of intensity can be had, down to the finest pin point of light, with all shadows eliminated.

TURN TABLES

I then needed a suitable platform or table upon which the specimens could be placed while being viewed. The problem was solved by constructing two (2) turn tables; one six (6") inches, the other twelve (12") inches in diameter.

The six inch turn table I used for viewing individual specimens in their micro boxes. On this table I placed a ball-socket mechanism which holds an individual micro mount permitting orientation of the specimen in all planes and directions, for either viewing or for photo-micrography.

The twelve inch turn table is rather

**PHOTOGRAPH C**

Binocular unit when used for entomology

novel. It holds sixty (60) micro mineral specimens in their respective 1" x 1" boxes. It is used at exhibitions where a number of people can view one specimen after another by simply turning the table. Sixty (60) micro-box covers have been cemented around the outer edge of the twelve inch table. When the unit is set up for exhibition purposes, it requires but a few minutes to place the micro mounts in their respective covers. With the stationary beam of light projected down through the condensing lens on the outer edge of the turn table, the ray of light naturally falls on one of the specimens. The table is revolved slowly. Each specimen comes into the field of vision of the Binocular Microscope, properly lighted. This is a great advantage over the old method of viewing one mineral specimen at a time, where each micro-mineral had to be handled and focused separately. Quite often delicate speci-

mens would be ruined by careless handling.

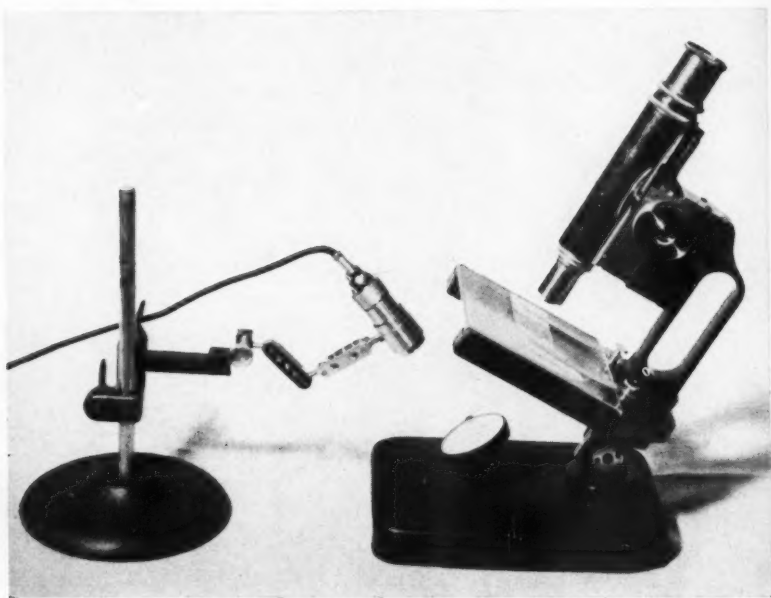
Both these turn tables are interchangeable. They fit into an orifice in a ten (10") inch arm that also slides on the vertical pillar. The arm can be rotated or clamped in any position on this same pillar.

ULTRA VIOLET

As an added feature, I equipped the above unit with a source of ultra violet light. The throwing of a switch changes the light from white to ultra violet. Anything I might say here, in reference to ultra violet illumination in microscopy, would fail to do it justice. It *must* be seen to be appreciated.

FLEXIBILITY

In addition to Micro-Mineralogy, I happen to be interested in other branches of Natural History, particularly, Entomology and the Biology of lower Marine



PHOTOGRAPH D

Monocular unit for high power

Invertebrates. Using this outfit as a nucleus, I proceeded to add other equipment to assist me in my work. I will briefly describe these parts just to show the flexibility of this unit. (See Photograph B)

ENTOMOLOGICAL

This base was designed especially for entomological microscopy. It consists of a substantial base upon which is mounted a hinge pin for inclination at any angle and an upright support with dove-tail



PHOTOGRAPH E

Stand used for preparation of micro mounts.

groove to accommodate the rack and pinion mechanism and Binocular body with its component optics. It is also complete with an insect holder comprising a metal ring lined with cork on which to pin the specimen. This ring is attached to universal joints, which allows movements in all directions of the insect under observation. A condensing lens on universal joints is also part of this base. This lens concentrates the beam of light on the object being viewed at all times. (See photograph (C)).

TRANSMITTED LIGHT

By removing the insect holder and illuminating lens from the above base and attaching instead a metal substage with glass slide plate, it makes this unit adaptable for transmitted light. A customary mirror is attached by means of a push pin into the base for directing the beam of light thru the slide to be observed. When using the unit with transmitted light, I was limited to low power, 10x-20x-30x, on the Binocular Microscope.

HIGH POWER

My most recent addition has been a Monocular observation tube for high power, of Leitz manufacture, complete with rack and pinion plus ball bearing vernier attachment. It is also fitted with a dove-tail slide to fit the upright on the base previously mentioned. Insertion of various objectives and oculars in this Monocular observation tube, now gives me a range of 40x to 750x. (See Photograph (D)).

AUXILIARY ILLUMINATING UNIT

A small Leitz illuminating unit is this unit would not have been possible.

shown in Photographs (C-D-E). It is comprised of a round cast iron base supporting a perpendicular nickel plated rod. A series of universal joints attached to this rod holds a six (6) volt miniature adjustable spot light. A small transformer supplies the power to light it. It can be used for incident light or with a daylight blue filter for transmitted light.

POLARIZATION

When viewing thin sections of rocks and minerals by transmitted light with the Monocular Microscope, a polarization attachment brings forth a hidden array of colors. These colors are not present when white or ultra violet light is used.

PREPARATION STAND

The small stand with table clamp, vertical pillar, cross arm, etc., shown in photograph (E), I used for viewing minerals while they are being prepared for mounting.

CONCLUSION

By interchanging the Binocular or Monocular body on the various stands and arms described above, I now cover the entire range of powers: 10x low - 750x high. Transmitted, incident, ultra violet or polarized illumination can be used as needed.

I cannot close this article without expressing my appreciation and thanks to Mr. Harry Ross, an expert in the field of general microscopy, for, without his assistance and advice, the completion of

Editor's Note: We would be greatly pleased if every reader of **ROCKS AND MINERALS**, who is interested in micro mounts and who would like to have more articles on this very fascinating branch of mineralogy, would drop us a postal card to this effect. We are also anxious to ascertain how many of our readers are micro mount enthusiasts.

One of our readers has suggested a depart-

ment for the magazine that would be devoted to the occurrence of minerals suitable for use as micro mounts. He believes that micro mount collectors would gladly submit notes but he is further in favor to have such notes describe specific mineral localities and not to ramble all over the entire area about which they write.

MOJAVE DESERT (CALIF.) MINERAL SHOW

By CLARK HARRISON

(West Coast Correspondent for ROCKS AND MINERALS)

On October 19, 20, 1940, the Mojave Desert Gem and Mineral Society of Barstow, California, headed by Walter Lauterbach, sponsored and held its First Annual Mojave Desert Mineral Show, one of the most interesting and colorful mineralogical conventions ever held in the state, and second only to the conclave held by the State Federation in Santa Barbara last April.

This fascinating meet had its headquarters and exhibits in Barstow's beautiful ultra-modern Beacon Tavern. This is one of the West's finest hotels, of California architecture, and situated high above the town on a rise, overlooking the white, shimmering sands of the desert, and the red and purple mountains beyond. It is surrounded on one side by a large extraordinary desert cactus garden, wishing well, and relics of past days when stagecoaches, bandits, miners and cowpunchers were familiar objects on the horizons. In the back of the garden is one of the old 20-Mule-Team Borax wagons that hauled borax from the Calico mountains near by to the railroad. In front of the Tavern is a huge mass of magnetic iron from Mexico for visitors to toy with. The lobby, halls and ground rooms were utilized for exhibition space.

Visitors From Many States

Sixteen hundred collectors attended, fifteen of the state's twenty-four mineralogical societies being represented. There were visitors from other states, too. Ralph Erskine, Jr., who came from far off Randolph, Maine, brought an excellent large specimen of pink tourmaline, containing long needle-like, triangular crystals, in a pegmatitic matrix of albite and quartz, from the Black mountains near Rumford, Maine. Many notables, whose names are well known for their energetic work in mineralogy, were also present. C. D. Woodhouse of Santa Barbara, president of the Califor-

nia Federation of Mineralogical Societies, officiated as one of the judges of the exhibits.

Beautiful Competitive Exhibits

The competitive exhibits of gorgeous gems and valuable minerals were confined to the Mojave Desert area, often referred to as the Golden Mojave Empire, and "The Jewel Box of America". Amateur and commercial exhibits were kept separate. Ribbons were awarded to first, second and third prize winners, while special awards of specimens, room and dining tickets, and a year's subscription to a leading mineralogical magazine, were given for unusual exhibits.

Wendell Stewart exhibited some beautiful cherry and fire opals, and other gems as well as large selenite and calcite crystals secured on his annual expeditions into Mexico with Earl Calvert of Pasadena. Mrs. Jessie Hersch, of Hollywood, exhibited an unusual collection of polished petrified wood. This lady has been collecting petrified wood for years and has some very unusual specimens, one being a petrified fungi. H. R. Ringwald, of Hollywood, had on display his beautiful cabachon and faceted set, most of the gems in this collection having been found by Ringwald himself. Dr. H. Marsden Heard and N. N. M. Freeman, of Hollywood, exhibited a prize-winning collection of novelties, cut and polished from howlite, petrified wood, etc.

Kent S. Knowlton, of Randsburg (noted gold, silver and tungsten district), exhibited his famous "Original Rock Dinner". A large table set with an appetizing meal was skilfully represented by local rocks and minerals almost to a degree of deception. A printed menu contains rib steak, potatoes, cauliflower, turnips, baked squash, desert clams, head cheese, pig's knuckles, peanut candy, ginger cakes, salad, piccali sauce, potato chips, liverwurst,

salami, celery, olives, dinner mints, salt, pepper, marble cake, and chocolate meringue pie. The rib steak is petrified wood, the clams are fossils, pepper is black sand, the salt is real, etc. The menu further states that if the teeth are poor, a good set may be rented. This pertains to the jawbone and huge teeth of a fossilized elephant which were found in a canyon near Randsburg.

Knowlton keeps this meal open to the public in his office at Randsburg, and persons all over the United States have seen this dinner and marveled at its realness.

The judges were: C. D. Woodhouse of Santa Barbara; Ernest W. Chapman of Pasadena; Dr. M. J. Groesbeck of Porterville; Paul VanderEike of Bakersfield; and Phil Orr of Santa Barbara.



Top view—

Famous Beacon Tavern of Barstow, Calif., headquarters of the Mojave Desert Mineral Show.

Bottom view—Members of the Pacific Mineral Society, Inc., finding turquoise on a mine dump in the Goldstone district, about 20 miles north of Barstow, San Bernardino County, Calif.

Field Trips Held

A dark room demonstrated fluorescent and phosphorescent minerals. A large variety of these minerals were shown, some coming from far away New Jersey. Commercial dealers demonstrated stock minerals, machinery, cutting and polishing. A grab bag and swapping was permitted on the second day. Several field trips were taken, to fossil beds, ghost mining towns, and mines (gold, lead and silver). One ambitious society, Pacific Mineral Society, Inc. of Los Angeles, secured fine specimens of manganese dendrites at Fern Rock mountain; satin spar, halite, and colemanite at the ghost town of Borate; silver and lead at the ghost town of Calico; turquoise in the Go'd-stone district; aragonite, iron nodule, feldspar, jasper, agate, chalcedony, and opal over in the Coolgardie gold placer district.

Dancing and Entertainment Also Featured

Dancing and entertainment was enjoyed at the Outpost, dining quarters of the Tavern, while some of the visitors attended a western dance at the nearby village of Yermo.

Barstow, An Old Mining Town

Barstow is an old mining town, 150 miles east of Los Angeles, on highway 66 (which runs from Los Angeles to Chicago). Has a population of some 2600. Manufactures rock granules and soft drinks. Lies in the rich river valley

of the Mojave river, where much farming is done; produces alfalfa, chickens, asparagus, cotton and cattle. Has mines of gold, lead, silver, salt, borax, barium and turquoise. It is like a gem in a gorgeous setting, a modern city tucked away among spectrum-colored hills. It is an oasis to the weary rock hound who comes dragging down out of the desolate mountains, across the dry, hot sandy wastes of fortune land. It is the "Gem of the Golden Mojave Empire"!

A Young Society But Going Places

The Mojave Gem and Mineral Society is one of the youngest societies in the state, but it is certainly going places. Organized only a short time ago, it has 66 enthusiastic members. The society just concluded one of the finest and most successful mineral shows and it is to be complimented for the perfect arrangement of exhibits, and the excellent handling of the meet. The officers, President Walter Lauterbach! First Vice-President Robert H. Green; Second Vice-President Fred C. Meyer; Secretary Tom R. Wilson; and Exhibit Committee Chairman Robert H. Greer, are all well known rock hounds in this part of the country. They have shown the visitors a grand time that will not be forgotten; and all are looking forward to the time when Barstow will bid for the State Convention so that they may return again to this charming little city—"Gem of the Golden Mojave Empire!"

Wedding Bells

When the Queens Mineral Society of Long Island, N. Y., was proposed in 1937, Miss Bernadette Reis and Mr. Edward J. Marcin offered their services in its behalf. After the Club was organized, Miss Reis was elected Secretary and Mr. Marcin Program Director. They never missed a field trip sponsored by the Society in fact it wasn't very long before they were making solo trips as they felt those scheduled were too few and far apart. This friendship ripened into love and on Saturday, October 12, 1940, they were married in St.

Mary Gate of Heaven R. C. Church. A two week's honeymoon was spent in some of the southern states visiting mines, quarries and other mineral localities.

At the regular meeting of the Society held on Thurs., Nov. 14, at 289 Etna St., Brooklyn, N. Y., the newlyweds were presented with a very fine set of bookends (Arizona petrified wood). Mrs. John A. Grenzig made the presentation which was a gift from the Club.

PERPETUAL ICE CAVES

By W. E. HOWARTH

Cardiff, Wales

I was very interested to read the account of Mr. Clark Harrison in the September number of *ROCKS AND MINERALS* of the occurrence of caves containing ice in New Mexico.

In high limestone and dolomite, ice caves are not uncommon, but owing to the nature of the country are usually very inaccessible. In Austria, however, a system of perpetual ice caves (claimed to be the largest in the world) has been known since 1879, but was opened to the public only in 1920, since when it has been one of the principal attractions (rivaling the salt mines) of tourists to the Salzkammergut. These caves, named fancifully by the Austrians "Eisriesenwelt", are entered at a height of 5436 feet after climbing on foot from the small town of Weren in the valley of the Salzach 45 kilometres south of Salzburg.

There are several caves containing ice which persists throughout the year, and the visit to all those open to the public requires two hours, though the first part (half a mile long) satisfies most visitors after they have climbed in a temperature of -2°C up the frozen waterfall, and a huge ice-cone, and seen the "Eismannndl" or ice-men (fantastically shaped stalactites of ice).

At first thought it is surprising that ice should persist throughout the summer at a height some thousands of feet below the perpetual snowline, but when it is remembered that glaciers extend on the surface a considerable distance below the snow line, even where the aspect is southerly, it is not surprising that a cave facing north or northeast, and receiving the direct rays of the sun only in the early morning when they are feeblest, should never be heated sufficiently to melt the ice in it.

The foot of the Rhone glacier which

extends southwards lies at a height of only 1753 metres (about 5,500 ft.) and this is exposed to the summer sun during a large part of the day.

There is another factor we are apt to forget in considering the behaviour of melting ice and snow; we should always bear in mind that the latent heat of fusion of ice is 80, that is to say that the heat required to convert ice at freezing point into water at the same temperature is the same as would raise the same amount of water at 0°C . to 80°C . — a temperature very much too high for a comfortable bath.

This reluctance of ice to become water was taken advantage of by our ancestors before the introduction of refrigerators, so that a feature of many houses in the British Isles is a stone building constructed with very thick walls and without windows, situated partly or entirely under ground in a spot with a northerly aspect and a shady damp wood surrounding it. This building was called the ice house, and in it was placed ice collected during the winter months, so that perishable articles of food could be preserved throughout the summer.

Editor's Note: The U. S. Geological Survey Topographical Map for the Ellenville Quadrangle (Ulster County, New York) shows ice caves in Shingle Gully on the northwest slope of High Point in the Shawangunk Mountains, $1\frac{1}{2}$ miles east of the village of Ellenville. One of our members who lives not very far from the locality has tried repeatedly to find the caves but without success.

The elevation of High Point is 2246 ft.; of the caves about 1700 ft. The geographical location of the caves as given on the map is $74^{\circ}21'20''$ W. Long., and $41^{\circ}42'55''$ N. Lat. Ulster County is in the southeastern part of New York.

If our readers know of ice caves in other sections of the country or the world, not mentioned above, would they please send in a brief report on them to *ROCKS AND MINERALS*.

NEW EDUCATIONAL MOTION-PICTURE FILMS TELL STORY OF NICKEL MINING, MILLING, SMELTING, AND REFINING

The mining, milling, smelting, and refining of nickel, one of the important metals used in making alloy steel, is interestingly described by word and picture in recent additions to the technical film library of the Bureau of Mines, United States Department of the Interior, prepared in cooperation with an industrial concern.

The subject is covered in three parts, each of which is available in 16-millimeter sound film. Part I, "Mining," and Part II, "Milling and Smelting," each require about twenty minutes to show; Part III, "Refining," requires about ten minutes.

PART I

Nickel Mining, starts with an animated map of the Sudbury District of Ontario, Canada, where more than 80 percent of the world's supply of nickel is obtained. This is followed by scenes portraying shaft-sinking operations, such as drilling, loading, and blasting a round of holes, handling the broken ore, and timbering the shaft compartments. Following these are several exterior scenes at the Frood Mine, the world's greatest nickel mine. Next we see the men taken underground in huge cages that carry 60 men a trip. Upon reaching the working level, about 3,000 feet below the surface, we follow the cars carrying men and supplies through the great tunnels and man-made caverns in this mine. Reaching the ore body we see drilling, blasting, mucking, loading, and other mining operations. In the scenes which follow, the mined ore is hoisted to the surface in huge buckets each holding 11 tons. Upon reaching the top of the shaft the ore is dumped into bins and then carried over picking belts to crushers and trommels which prepare it for transportation to the concentrator. Other scenes show open-pit nickel-mining operations including churn drilling, blasting, and loading ore with huge mechanical shovels. These are followed by scenes showing belt conveyors carrying the crushed ore to the storage bins where it awaits shipment to the concentrator and smelter at Copper Cliff.

PART II

Nickel Milling and Smelting, presents air

views of the Copper Cliff nickel smelter, and of reservoir impounding water for generating hydroelectrical power. Subsequent scenes show details of the concentration process, including crushing, grinding, classification, flotation, thickening and disposal of tailings, and thickening and weighing of concentrates. These are followed by a complete picturization of roasting and smelting practices. Included in this picturization are spectacular scenes showing slag disposal, the operation of reverberatory furnaces, converters, cupola furnaces, and blast furnaces employed to produce nickel-sulfide bottoms or natural alloy matte.

PART III

Nickel Refining, covers operations at the Port Colborne refinery near the entrance to the Welland Canal. The opening scenes show a cargo boat entering and leaving the canal locks and are followed by views of the employees club and general offices and an aerial view of the world's largest nickel refinery. The refining process is portrayed in detail, starting with delivery of the raw material from the smelter and followed by crushing, leaching, sintering, smelting in reverberatory furnaces, and the operation of the wheel casting machines where the molten metal is poured into molds to form anodes for the electrolytic tanks. Subsequent scenes show anodes being loaded into the electrolytic tanks, and cathodes of 96-percent-pure nickel being removed and cut to marketable sizes. The concluding scenes portray the manufacture of black nickel oxide and nickel shot, which are other commercial products of the refinery.

Copies of these films, in 16-millimeter sound, are available for exhibition by schools, churches, colleges civic and business organizations and others interested. Applications for the film should be addressed to the Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Pennsylvania, and should state specifically that the borrower is equipped to show sound film. No charge is made for the use of the film, although the exhibitor is expected to pay the transportation charges and for any damage to the film other than normal wear.

A book on minerals makes a nice Christmas present.

Christmas gifts that please—subscriptions to
ROCKS AND MINERALS.

Diamond is what makes your diamond saw
refuses to saw when there isn't any in it.

Make this a Mineralogical Christmas! Give
minerals to your friends.

ESTABLISHMENT OF NEW MINE-RESCUE STATION OF BUREAU OF MINES AT ALBANY, NEW YORK

The opening of a new mine-rescue station of the Bureau of Mines, U. S. Department of the Interior, at Albany, New York, was announced on October 16, 1940. The new station, which will be located in the Federal Building, will serve the State of New York and the New England States.

Lester L. Naus, associate mining engineer, has been placed in charge of the new safety station and will have the assistance of two safety instructors. A mine-rescue truck, fully equipped with rescue apparatus and accessories, has been assigned to the station.

An appropriation of \$20,000 was made by the present Congress for the establishment and maintenance of the station. The need for a mine-rescue station to cover this general area is due to

the extensive tunnel projects now under way in New York State and to the importance of the mining and quarrying operations in New York and in the New England States.

The personnel of the new safety station will instruct mine, tunnel and quarry workers, and other employees in the mineral industries, in first-aid and safety methods and will give attention to various safety problems in connection with such industries. The area to be served by this station is part of regional District B of the Bureau of Mines, with headquarters at Wilkes-Barre, Pa., in charge of S. H. Ash, district engineer. The personnel will cooperate with the New York State Departments concerned with health and safety in the mineral industries in the endeavor to bring about safer conditions in the area to be served.

CAMELS ONCE LIVED IN SOUTH DAKOTA

Camels of South Dakota have recently been collected by an expedition of Field Museum of Natural History, Chicago, Ill. The camels lived in that state during the Miocene age, about 18,000,000 years ago, and are now mere skeletons of themselves. They are included in a collection which gives promise of being one of the best representations of fossil mammals from the Rosebud Beds in South Dakota, according to reports received by Clifford C. Gregg, director of the museum, from Paul O. McGrew, of the museum's paleontological staff, who is the leader of the expedition. Other specimens collected include a large number of skeletons and skulls of the extinct ungulates known as oreodonts, extinct peccaries, and horses. Also included is

an especially fine representation of extinct species of rodents, some of which are believed to be of kinds hitherto unknown to science. Nearly all of the material obtained represents mammals not previously represented in Field Museum's collections.

The excavations have been principally in the vicinity of Wounded Knee, famous as a battlefield during the later Indian wars of the nineteenth century. The expedition has now shifted its operations to northwestern Nebraska where the skeletons of other small prehistoric camels are being excavated. Mr. McGrew is accompanied by John Schmidt and Ellsworth Shaw, and has enlisted also the cooperation of local collectors.

SOMETHING DIFFERENT TO COLLECT

For those of our readers who may like to collect specimens of rocks or mineral that are a little different from the ordinary varieties, we can recommend two types for their consideration.

The first, those specimens broken off from exposed crusts of rock and mineral masses outcropping above the surface of the ground. These may show glaciated surfaces (polished, scratched or grooved); polished faces due to faulting; weathering; contacts; small cavities containing crystals; and other forms. A large series of most interesting specimens may thus be acquired.

The other type is a collection of diamond drill cores. Diamond drill borings are so commonly sunk throughout

the country—at mines, quarries, aqueducts, shafts, tunnels, wells, foundations—that their cores may be picked up almost anywhere. A series of diamond drill cores are most attractive at times and certainly interesting. In the anthracite region of Pennsylvania, slate cores showing thin seams of anthracite are common, sometimes a tiny fossil leaf would be exposed or a tiny pyrite or rock crystal. At magnetite mines of southeastern New York gneiss cores showing thin veins of magnetite, epidote or garnet, or all three, are often found. These are but two examples of the large array of rocks and minerals that are brought up by diamond drills.

With Our Members

William B. Pitts, one of California's most popular and well known collectors, who specializes in gem minerals, is on his annual trip East. For the next three months he will sojourn in Florida where he can be reached via P. O. Box 248, Delray Beach, Fla. We are very sure he will travel north to New York City before leaving for his home in Sunnyvale, Calif.

Mr. and Mrs. Curt Segeler of Brooklyn, N. Y., spent two weeks during November touring southern mineral localities. A card sent from Charlott, N. C., stated that many fine specimens were secured.

Mr. James G. Manchester, of Hampton Bays, N. Y., and Mr. Geo. L. English, of Rochester, N. Y., are down in Sunny Florida for the winter.

James F. Morton, Curator of the Paterson Museum, Paterson, N. J., Arthur H. Jones, of Brooklyn, N. Y., and Allison Albee of Rye, N. Y., spent their vacations recently among the mineral-infested localities of Nova Scotia. Each brought back many interesting tales of localities visited and specimens collected.

S. H. Sherman, of LaGrange, Ga., has collected from near his city, a large number of very interesting quartz crystals, many containing s faces. Perhaps he can be indeed to send us an article on the occurrence.

Dr. A. C. Hawkins, formerly of New Brunswick, N. J., is temporarily residing in Salisbury, N. C.

Leonard A. Morgan, one of New Jersey's

most active collectors, has moved closer to the famous localities of the state, when he changed his residence from Burlington to Dover. Dover is in the center of the great iron mines of the state and only a few miles from the world-renowned trap-rock quarries around Paterson.

Dr. A. C. Worth, of Albany, N. Y., recently visited Acworth, N. H., where some very fine beryl specimens were collected. (Note the similarity in the names of the collector and locality).

Horace W. Slocum, of Rochester, N. H., is residing temporary in St. Louis, Mo. He recently visited a pyrite mine not far from the city where some interesting selenite and barite crystals were collected.

O. A. Reese, of Colorado Springs, Colo., is the recipient of many congratulations on his very fine exhibit of mineral specimens in the main window of the Chamber of Commerce in his city. It is said on good authority that a nice mineral display of crystallized minerals attracts more interest and attention than any other exhibit ever featured in this window. Mr. Reese's collection, by the way, is recognized as one of the best in Colorado.

B. J. Fritz, of Seattle, Wash., has sent the Editor of ROCKS AND MINERALS a 3" specimen of a diamond drill core that was taken from the bed of the Columbia River, 165 ft. below where the center of the new Coulee Dam (in Wash.) now rests. The core is granite and polished on all sides—a very beautiful and interesting specimen. It is the first diamond drill core we ever saw that was polished.

NEW ENGLAND NOTES

Conducted by Rudolf C. B. Bartsch

36 Harrison St., Brookline, Mass.

Maine: A late visit on October 20-21 to Mt. Newry and Black Mt., in Maine, resulted in the securing of several fine specimens of minerals. The first day was spent at Mt. Newry. The day was cold and windy and the trail was covered with ice crystals which in some places was more than 2 inches deep. A part of the time was spent on the older upper dumps and fine specimens of tourmaline, purpurite, amblygonite and lepidolite were secured. On the newer and lower dumps a very fine crystal of triphylite was secured by the writer. It was about 1x1x2, a short prismatic crystal with many fine faces. It is altered to heterosite and sicklerite, the sicklerite being closest to the matrix of massive triphylite and muscovite. The heterosite is on the external sides. The crystal is now part of the collection at the mineral museum at Harvard University, Cambridge, Mass. Very few crystals of triphylite are known and this find makes the second in the museum's collection; the first was found by Dr. Berman, of the museum, at the North Groton, N. H., locality.

In a new and very recent opening on Mt. Newry, spodumene in an interesting altered condition was found. It is in a very fragile condition, soft and of a pale green color and has a somewhat "talc" feel. On becoming dry, it has become much harder. Under the microscope, it has a fine mica-like texture and thus gives an indication of the trend of the transition and so must be placed under "pinite". Much triphylite is to be found on these lower dumps vividly coated with blue vivianite. Some excellent quartz crystals were secured including a few small rose quartz crystals.

Our party was informed by the operator of the active pits that he intends to close Mt. Newry to every one due to loss

of equipment and the ruthless handling of material which had been set aside for their use. He told us that he had given the local sheriff orders to prosecute all trespassers. So, in view of these facts, it would be well for collectors intending to visit Mt. Newry to write to The West Paris Feldspar Co., West Paris, Me., for permission, inclosing a self-addressed stamped envelope for reply.

Black Mt., Me.: The usual material found here was quite plentiful. There are now several new openings higher up on the mountain and while some of the more showy minerals found in the older lower openings have as yet not appeared there are however many other interesting specimens to be found. A large vein of triphylite coated with vivianite, very similar to the same material found at Newry, is now exposed. Above this triphylite is a "cap" of feldspar containing excellent specimens of purpurite. Several specimens were secured of eosphorite, small yellowish crystals in cavities in albite. Many groups of albite crystals in cavities were available. In one such group of albite crystals the writer found an interesting gem crystal of deep blue-green tourmaline. It was coated on the outside with drusy quartz and had a perfectly flat termination.

Ragged Jack Mt., Hartford, Me.: Mr. Philip Morrill, of East Greenwich, R. I., calls the writer's attention to this famous chrysoberyl locality. He says this locality is well worth a visit although difficult to reach. To reach it, take road on east side of Labrador Pond from West Paris or East Sumner and go north turning east on first road after passing end of lake. This road goes directly towards the mountain and the locality is the enormous cliff on side of mountain which

(Continued on page 415)

COLLECTOR'S KINKS

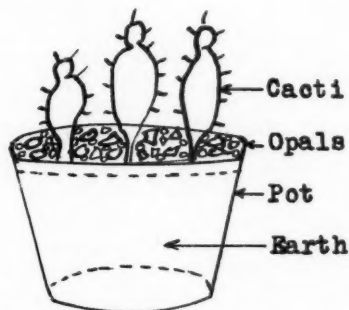
Collectors are cordially invited to submit notes from their experiences and so make this department of interest to all.

An Opal Rock Garden

In Australia a keen interest has become manifested in all sorts of cacti plants for rock gardens. Miniature rock gardens in which the plants are placed in a wide variety of ornamental pots or jars are on sale in many florists shops.

It had occurred to me that these interesting little cacti plants with their miniature rock gardens could be utilized for the sale of opal specimens and other showy minerals such as deep blue azurites, etc. I, therefore, purchased a few of the little pots, removed the drab pebbles that were present and substituted odd bits of cheap, rough opal and placed them on sale in my store. Instantly they became popular—selling like hot cakes.

My method in fixing up a pot is as follows: After removing the pebbles a sprinkling of light fire opal is laid to cover all the earth surrounding the plant and then on these larger and better but still small, odd pieces of green, blue, black, fire and brown opals are placed. When water is added to the plant, a most beautiful sight bursts forth before one's eyes—a wondrous array of flashing colors, fire, red, blue, green, and golden—all sparkling and flashing in the drops of water! It is amazing what a beauti-



A miniature rock garden in which rough fragments of precious opal are scattered among the plants which in this particular instance are cacti.

ful effect can be made out of practically worthless odd bits and chips of rough opal.

As a further business proposition, I also place in the show window of my store little boxes of assorted, rough chips of opal that are ideal for rock gardens, and these, too, have sold well.

N. H. Seward,
Opal dealer
Melbourne, Australia.

NEW ENGLAND NOTES

(Continued from page 414)

may be seen for miles. Car must be left on road nearest to this cliff. There is a pegmatite vein running down face of rock and outcrop is in solid white quartz just above wide ledge about 30 feet from ground. Occasionally crystals of chrysoberyl may be found in loose small

pieces at foot of the cliff but they are scarce. Good crystals may be found in some of the huge boulders lying down side of mountain. The crystals are triangular averaging $\frac{3}{4}$ " a yellow-green and transparent to translucent. They are difficult to see. It is interesting to know that all these enormous boulders have broken off from side of mountain about fifty years ago and in the middle of a night.

NORTHWEST FEDERATION CONCLAVE

By CLARK HARRISON

(West Coast Correspondent for ROCKS AND MINERALS)

On October 12-13, 1940, the Northwest Federation of Mineralogical Societies held its fourth annual convention at Spokane, Washington. An enormous crowd attended and most of the Federation clubs were represented. The Columbia Geological Society of Spokane acted as hosts to the visitors. Headquarters were held at the Davenport Hotel.

The Northwest Federation has been growing like wildfire, and now has twenty societies in five states: Washington (10), Idaho (4), Oregon (3), Montana (2), Wyoming (1). More clubs are forming. Since 10 societies joined the Federation this year, this represents an increase of 100% over last year. Individual membership increased over 100%, now standing at 825.

The numerous exhibits were exceptionally fine, and prizes were awarded according to classifications.

For Cabochon and facet cut stones:

1st—Stanley O. Miller, Lewiston, Idaho.

2nd—Bob Ross, Seattle, Washington.

3rd—H. E. Murdock, Bozeman, Montana.

For Flats and Slabs:

1st—Walter Nelson, Portland, Oregon.

2nd—Mr. and Mrs. C. Arthur Foss, Seattle, Washington.

3rd—Guy Bloomquist, Portland, Oregon.

For crystals and Minerals:

1st—C. E. Adsitt, Lewiston, Idaho.

2nd—C. E. MacDonald, Seattle,

Washington.

For Fossils:

1st—A. W. Hancock, Portland Ore.

2nd—Mrs. Laura Potvin, Lewiston, Idaho.

3rd—A. A. Alexander, Spokane, Washington.

Honorable mention of exhibits not under announced classifications:

Noted Sutter Fluorescent Show: Walter Sutter, Tacoma, Washington.

Exquisitely matched cabochons mounted in hand-made jewelry: Mr. and Mrs. Walter Larson, Seattle, Washington.

Exquisite display of moss agate specimens: J. Lewis Renton, Portland, Oregon.

Activities were very numerous, including many fine private exhibits, lapidary demonstrations, and a banquet de luxe at the Davenport Hotel. Action was taken to increase the Federation's activities in local and national fields, and to aid in furthering interest among amateur rock and mineral collectors.

The newly elected officers of the Northwest Federation are:

President: J. Lewis Renton, Portland, Oregon.

Vice-President: Don Major, Tenino, Washington.

Secretary: A. W. Hancock, Portland, Oregon.

Treasurer: Dale Lambert, Spokane, Washington.

Honorary Vice-President: Dr. H. C. Dake, Portland, Oregon.

The 1941 convention will be held in Portland, Oregon.

"There's gold in them thar hills," remarked the dentist as he finished working on a collector's teeth.

Public Pest No. 1313: The fellow who borrows my ROCKS AND MINERALS Magazine before I have a chance to read it.

Pathetic figure: The lapidist who works long and carefully in shaping a beautiful stone only to have it break when the final polish is applied.

This issue is chuck full of desirable items for Christmas gifts. Read all the ads through carefully and select those items which intrigue you. Your friends will be pleased when they receive these gifts.

Make this a Mineralogical Christmas!

Give minerals, mineralogical books, gems, fluorescent lamps, lapidary supplies or subscriptions to ROCKS AND MINERALS as Christmas gifts. The advertising pages of this issue offer many attractive items.

. . . Club and Society Notes . . .

Bridgeport Mineral Club

Through the courtesy of Mr. Gregory, Head Master of the Country Day School, Fairfield, Conn., our first meeting of the year was held at the Country Day School. Here we enjoyed examining a collection of choice minerals, the property of the school through the gift of Mrs. Kirsten of Greenfield Hill, Conn.

After this informal gathering the following officers were elected for the year 1940-41:

President, Mr. Earle Sullivan.

Vice-Presidents and Program Directors, Mr. Ernest Marshall, Mr. James McKeen, and Mr. Murrie Perkins.

Sec.-Treas., Mrs. Herbert L. Walker.

Asst. to Sec., Miss Georgiana Seward.

Trip Director, Mr. James McKeen.

The meeting then enjoyed a mineral recognition contest, which proved not only decidedly educational but highly enjoyable.

Much credit is due to the untiring interest and effort of our president the past year, Mr. Arthur Sandiford, who has personally conducted our field trips and secured a number of speakers of outstanding ability.

At the November meeting of the Bridgeport Mineral Club there was much interest and enthusiasm shown over the beautiful and varied display of fossils and minerals brought in by enthusiastic members of our club.

Many specimens came from Virginia, the Carolinas, Maine, New Hampshire, and the far away Bad Lands of the Dakotas and the Pacific coast.

Miss Georgiana Seward, Mrs. Dwight Banks, Mr. James McKeen, and Mr. Ernest Marshall who traveled extensively during the summer, spoke of their interesting and exciting experiences in relation to obtaining their collection.

Our meetings are held at the Bridgeport Public Library on the third Monday of the month but our last meeting was a "special".

JULIA B. WALKER, Sec.
(Mrs. Herbert L. Walker)

Plainfield Mineralogical Society

A regular meeting of the Society will be held on Tues., Dec. 3rd, at 8:00 p.m. in the Park Hotel, Plainfield, N. J. This will be a combined meeting with the Plainfield Engineers Club. The guest speaker will be Dr. Edwin Sampson, of Princeton University, whose topic will be "The Geologic History of New Jersey".

On Sun., Dec. 15th, the Society will hold a "Franklin Minerals Identification Session" at which meeting members will bring their unclassified Franklin, N. J., specimens for further identification.

Mineralogical Society of the Raritan Bay District

This is the latest mineral club to be formed in the East and it came into being in June, 1940. It is located in Perth Amboy, N. J. Preliminary meetings were first held during the early part of the year at which much enthusiasm was manifested by those attending.

At the June meeting the club was officially organized and officers elected. The officers are:

George Molnar, President.

William B. Derick, President-elect.

Beatrice Andersen, Corresponding Secretary.

Ralph Andersen, Recording Secretary.

Charles Krutzler, Counselor.

Elias Baltin, Counselor.

The publication of a Journal was also approved at this meeting and William Ellis was elected Editor and William B. Derick, Associate Editor.

The Society meets officially the first Tuesday of each month at 7:30 p.m. in the auditorium of the Perth Amboy Public Library. During the summer months a second meeting has been held on the third Tuesday of each month, also at 7:30 p.m., and this meeting is to be continued for the time being.

Northern Ohio Guild

The members of the Northern Ohio Guild Study Group of the American Gem Society listened for two hours to an absorbing lecture on the subject of "When and How Gems Were Formed", given by Dr. Henry Donner in the Department of Geology of Western Reserve University in Cleveland on Monday evening, October 28th.

This was the second of a series of lectures that have been worked out by Dr. Donner to correlate the study group work with the written assignments of the gem courses.

Beginning with the creation of the earth as a flaming satellite flung off the sun, Dr. Donner traced the history of the stages preceding and during the formation of gem material.

He told of the formation of the igneous rocks by cooling, the appearance of mountains and valleys. He showed with diagrams the manner in which the pegmatite dikes and the great volcanic pipes were developed through the tremendous pressure exerted by the outer rock formation upon columns of molten magma that sought to reach the surface.

The lecture was concluded with a demonstration by Dr. Donner of the actual cleaving of dozens of pieces of rough minerals in order to bring out the variations in the natural arrangement of cleavage planes.

BIBLIOGRAPHICAL NOTES

An Astronomical Hypothesis to Explain Permian Glaciation: By Ronald L. Ives.

Speculation concerning possible causes of Permian circumequatorial glaciation has resulted in several interesting hypotheses, among which are those postulating various continental drifts, and several based on assumed changes in atmospheric circulation occurring as a result of relatively minor changes in the size, relative location, or interconnection of the continental masses.

In this very interesting paper, Mr. Ives, who is Vice-President of the Rocks and Minerals Association, presents an astronomical hypothesis, attributing the known climatic peculiarities of the early Permian to the effects of a ring of small satellites about the earth in approximately the plane of the equator.

The paper appears in the *Journal of the Franklin Institute*, Philadelphia, Penn., Vol. 230, No. 1, July, 1940, pp. 45-74. It contains 3 figs.

Launay Township, Abitibi County: By S. H. Ross.

An interesting report on the geology and mineral resources of the township. It contains 26 pp., 1 map, 1 plate, 3 figs.

Issued by the Bureau of Mines, Quebec, Canada, as Geological Report No. 1.

Bulletin of the Speleological Society of the District of Columbia.

This is the official journal of the Society and the first issue (Vol. 1) came out in June, 1940. The Society was organized in May, 1939, and its purpose is to disseminate information on caves and cave exploring. A number of members of the Rocks and Minerals Association are members of the Society.

Vol. 1, of the *Bulletin* contains a number of interesting articles, one especially is of value to those of our readers who might be thinking of exploring abandoned mines. The article is "Cave Safety" and was written by the President of the Society, Mr. Wm. J. Stephenson.

Copies of this issue, which contains 62 pages, are 25c each and may be obtained from A. C. Lewis, Corres. Secretary, 510 Star Bldg., Washington, D. C.

Cyaniding for Gold: By Ion L. Idriess with a foreward by A. N. Graham.

A cyaniding process is one which extracts gold from finely crushed ores, concentrates and tailings by means of potassium cyanide in dilute solutions. The gold is first dissolved

by the solutions and later deposited upon metallic zinc or by other means.

In this admirable text the author explains in simple language the entire process from A to Z—for the miner who can only invest \$100 for a plant or for the syndicate that can afford \$15,000 or more. No man, now, need be a metallurgical chemist before he tackles a cyaniding proposition. All he needs by way of instruction and explanation is this book.

Cyaniding has meant the recovery of many millions of pounds of gold not only from new mines but from old abandoned dumps as well. Once understood the process is a simple one and has proved its efficiency in extracting very low values from ores. Leaching plants for the treatment of sand, and Agitation plants for slime treatment are clearly described and their operation explained from the start to the smelting of the bullion.

Mr. Idriess has covered the design, construction, and operation of a cyanide plant from the simplest to the most complex type. He has also supplied compiled tables and useful data which simplify the calculation, make-up and control of the reagents essential to the process of cyanidation. A number of illustrations add greatly to the value of the text. Chapter XXXIII (pp. 231-240) is devoted to "Testing for Minerals" by the blow-pipe method.

270 pp., 3 tables, 17 illus., 8 3/4 x 3 1/4, \$2.50.

This very instructive and valuable book is published by Angus and Robertson, Ltd., 89 Castlereagh St., Sydney, Australia.

A Systematic Classification for the Birds of the World: By Alexander Wetmore.

A valuable classification of living and extinct (fossil) birds.

Issued as Publication 3592, Oct. 10, 1940, 11 pp., by the Smithsonian Institution, Washington, D. C.

Raritan Bay Geological Journal:

The first number of the Mineralogical Society of the Raritan Bay District, Perth Amboy, N. J., came out in September, 1940. It consists of 10 pages and one colored map. The contents are devoted chiefly to trips to localities made by some of the members of the Society. William Ellis is the Editor and William B. Derick is the Associate Editor of the *Journal*.

The initial copy of the *Journal* is a very attractive publication and the Society is to be commended for its issue.

... Collectors' Tales ...

By PETER ZODAC

We Recently Heard This One!

In one of the New England states a quarry in pegmatite was recently opened in a virgin section of country. The quarry was so isolated that a road over a mile in length had to be constructed to reach it. Unfortunately, however, the quality of the pegmatite was so poor that when a well-known collector visited the locality he became amazed when he saw the conditions that were before him.

"Who in the world ever opened up a quarry here and built the expensive road to reach it?" he asked himself.

Investigation showed that some "collector" had found a small loose beryl crystal near the site and being curious in knowing what might be found in the nearby outcrop had sought out the owner of the property and talked him into opening up the quarry.

THE LAYMAN SCIENTIST IN PHILADELPHIA:

Technological advances, medical discoveries and science for national defense occupy the citizen's mind. But there is another phase of science and its relation to the public not so widely recognized. That thousands of non-professionals occupy their leisure in scientific pursuits is unknown to many people.

A study of Philadelphia, supported by a grant from the Carnegie Corporation of New York and under the supervision of the American Philosophical Society, reveals some startling facts. Results of this survey now for the first time brought together in the Layman Scientist in Philadelphia, (a 44 page illustrated

booklet), show that this sample metropolitan community contains 287 active amateur organizations. The more than 32,000 persons represented in these laymen's groups have access to 72 different museums, institutes, libraries, observatories and other science resources. There are over 120 courses in 19 fields of science open to the adult public.

Copies of the booklet may be obtained for 10 cents each or 15 cents by mail by addressing W. Stephen Thomas, Executive Secretary, Committee on Education and Participation in Science, the American Philosophical Society, 104 South 5th Street, Philadelphia, Pennsylvania.

Clubs to Interest Youngsters in Mineralogy

Mr. Orlin J. Bell, Chairman of Convention of the Sixth Annual Convention of the California Federation of Mineralogical Societies which will be held at Oakland, Calif., May 10 and 11, 1940, has proposed a most worthy plan for furthering mineralogy. A letter from him sent to every Society of the Federation suggests or recommends that it hold a local contest for boys and girls only. Each youngster is to exhibit a collection of minerals and the boy or girl winning the first prize has the

privilege to compete at the Sixth Annual Convention.

The contests must be held before the last meeting in April of each respective Society so that the prize winners may have ample time to ship and assemble their collections before the Convention opens.

We hope that clubs in other sections of the country may look with favor upon this commendable plan and adopt similar ones of their own. If mineralogy is to grow and flourish, we must get the youngsters interested in the

CLASSIFIED ADVERTISEMENTS

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Rate 10c per word; minimum 10 words. Remittance must accompany copy in all cases. Advertisers must furnish satisfactory references before their advertisements will be inserted. Forms close the 1st of every month.

BOOKS

Handbook For the Amateur Lapidary by J. H. Howard, 16 chapters covering all phases of gem cutting and polishing, 141 pp., 44 illus., price \$2.00. J. H. Howard, 504 Crescent Ave., Dept. R., Greenville, S. C.

How to Collect Minerals. By Peter Zodac. A guide book for the collector, 80 pp., 15 illus., \$1.00. Rocks and Minerals, Peekskill, N. Y.

Fifty Back Numbers of Rocks and Minerals Magazine, all in good condition and all different, \$10.00. If you have back numbers send a list of them with your order and we will try not to duplicate any of them. Rocks and Minerals, Peekskill, N. Y.

FOSSILS

Fossils, Minerals, Old Arms, Indian Beaded Trappings, prehistoric specimens, general line of curios. Lists 10 cents. N. E. Carter, Elkhorn, Wisc.

EXCHANGES

I WANT TO EXCHANGE MINERALS. CAN OFFER fayalite, forsterite, thorite, triphylite, heterosite, manganapatite for good specimens from other localities. Gunnar Bjareby, 147 Worthington St., Boston, Mass.

LAPIDARY SERVICE & SUPPLIES

Diamond Saws Cut At Least Five Times Faster than any other type of saw. They use less power, are cleaner to operate and absolutely safe, and what is most important for per square inch of material cut, they are far cheaper. We are prepared to stand back of these statements. Eventually you will use one. Full directions for use with each saw. Free lessons and demonstrations given local purchasers. Prices 8" \$5.50; 10" \$6.50; 12" \$7.50. Larger sizes on request. Wilfred C. Evans, 794 W. A St., Hayward, Calif.

MINERALS

Opalized Shells; about 100 (partly broken) at 25c each. Assorted Opal Specimens: for collectors \$1.00 a dozen. Cutting Opals for Lapidaries: \$1.00 to \$10.00 oz. Large Queensland Boulder Opals: vivid colours \$1.00 to \$10.00 upwards. Faced "Black" Opals: 1000 small specimens 50c each. Norman Seward, "Opal House," Melbourne, Australia.

Scott Rose Quartz Co.—Rose Quartz, Black Hills specimens, all kinds and colors; for rock gardens, cabinets, etc. Boxes: 24 specimens, \$1.00; 18 specimens, 50c; 15 specimens, 35c. Postage paid. Box 516, Custer, S. Dak. Send stamp for price list.

Labradorite—Gem Quality, \$2.00 per pound. Special price on fifty pound lots and over. 1018 Viemas, 244 East 77th St., New York City.

Garnets of gemmy quality for cutting. Deep red color, 15 for \$1.00. F. L. Noy, Easton, Conn.

MINERALS

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Dr. Arnold prepared thin sections of the material and by a careful microscopic examination he determined the specimens to be a new species of fossil fern.

According to Dr. Arnold, "The so-called silicified palms from Greenhorn, Oregon, belong to *Tempskya*, an extinct genus of Cretaceous ferns. Several species of *Tempskya* have been described from North America, but the Greenhorn material represents a form different from any of the previously known ones. It is therefore new and unnamed."

After he has completed his studies of the new material, a name will be given to the new species.

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For the past few years local collectors have sold the new fossil fern

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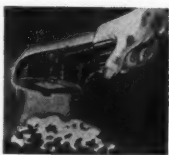
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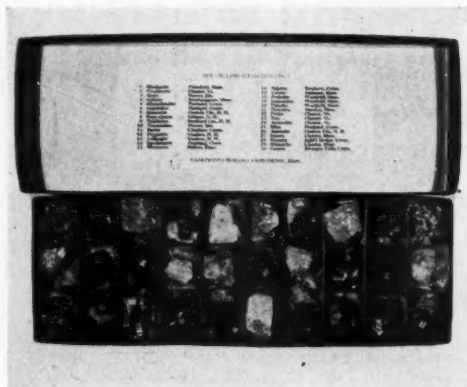
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ROCKS AND MINERALS

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